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The Impact of Unions in the 1890s:
The Case of the New Hampshire Shoe Industry

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Since John Commons's History of Labor in America, the overwhelming majority of histories of the American labor movement have depicted 19th century unionism as little more than the ideological seed from which modern American unionism grew. The rise of the American Federation of Labor, perhaps the single most important development in the late-19th-century history of American labor, is traditionally analyzed in terms of the ideologies, politics and personalities of labor leaders at the expense of discussion of unionism's economic effects. This emphasis reflects the preoccupations of authors writing in the tradition of the "old labor history," who were concerned primarily with the labor philosophy, organizational structure and membership composition of early American unions. Their tendency to pay less attention to the impact of turn-of-the-century unionism on the earnings, hours, and working conditions often led, unwittingly, to the inference that any such effects were small.¹

Contributors to the "new labor history," in contrast, attach greater weight to the economic impact of 19th-century unions.² Frequently they argue, however, that 19th-century labor organizations, in an ironic departure from their credo of "equal rights," served the interests mainly of the elite of skilled workers. If turn-of-the-century unionism conferred concrete economic benefits, these were enjoyed primarily by workers who were already relatively well off. The implication is that 19th-century unionism, contrary to its self-avowed goal, may have served to accentuate economic inequality. Studies that argue this conclusion are rarely buttressed by quantitative evidence on late-19th century unionism's economic effects, however.

Two recent investigations have adopted a different approach to analyzing 19th century unionism. Employing a statewide survey of Iowa wage earners from 1894 to analyze the impact of unionism on labor earnings and hours, one of the present authors found that the earnings of union members exceeded those of nonunion workers by 17 per cent or more, even after controlling for characteristics of the individual and the industry other than union status.³ In a second study using observations from Carroll Wright's 1890 investigation into the cost of living of American workers, Ira Gang found union earnings premia that, while varying significantly across industries, often matched or exceeded both those estimated using the 1894 Iowa sample and those found by investigators using post-World-War-II data.⁴ While neither analysis addresses directly the issue of whether skilled workers reaped the greatest benefits, together these studies challenge the reigning consensus that 19th century American unionism had at most second-order economic effects.

The limitation of the approach arises from the difficulty of controlling definitively for characteristics of the industry, characteristics of the job and characteristics of the individual which might themselves be correlated with both union membership and earning power. American unions tended to appear first in industries and occupations in which workers were particularly skilled. In the absence of adequate industry and occupational controls, unionism will therefore be associated with higher-than-average earnings even if it is the characteristics of the industry, occupation or worker, and not unionism, that are the source of the earnings premium. Although the earnings functions estimated on the 1894 Iowa data include 12 industry dummy variables as controls, and while the functions fitted to Wright's 1890 data are

estimated separately for various industry groups, some possibility remains that both of these multi-industry analyses control incompletely for the concentration of late-19th-century unionists in high-wage, skill-intensive industries and occupations, leading them to attribute to unionism earnings differentials in fact due to the characteristics of members' industries or of their jobs.

The logical response to this problem is to study the union wage effect in a particular industry and to distinguish its impact on workers in different occupations. That is the approach taken here. We analyze the impact of unions on earnings in the New Hampshire shoe industry in the 1890s. Our study confirms the existence of a statistically significant and economically important union wage effect, while indicating that the success with which unions elevated the earnings of their members depended on the nature of occupations. Union members in skilled positions received daily wages from 14 to 17 percent above those of otherwise comparable nonorganized workers, while those in unskilled positions received little pecuniary return from union participation. Unionism tended to level the earnings distribution within occupational groups while at the same time tending to accentuate differentials between groups. Thus, while our results are inconsistent with the conclusions of the old labor history, they only partially support those of the new.

1. Unions in the New Hampshire Shoe Industry

The history of organized labor in the shoe industry mirrors the stages of development of the American labor movement. In the quarter century ending in 1894, shoe workers passed from a local form of organization first to a

nationwide, multi-trade form of association incorporating a mixture of both preindustrial and industrial ideologies and then to a form of "pure and simple" trade unionism reconciled to wage labor and the factory system. In the first period, from 1868 to 1878, the majority of organized shoe workers belonged to the Order of the Knights of St. Crispin. In the second, from 1878 to 1889, most belonged to the assemblies of the Knights of Labor. In the third, from 1889 to 1894, shoe workers were primarily represented by the Boot and Shoe Workers' International, an affiliate of the American Federation of Labor.

The Knights of St. Crispin were formed in 1867 by Newell Daniels, a boot treer from Massachusetts then living in Wisconsin.⁵ Within a year of its inception no less than 87 charters had been granted to lodges in Wisconsin, New York, Massachusetts and other states.⁶ The rise of the Crispins coincided with significant shifts toward mechanization and factory production. The widespread application of the McKay Stitcher beginning in 1862 in conjunction with an elastic supply of unskilled labor combined to pose a serious threat to craftsmen in the shoe trade. Already in the previous decade, Howe and Singer's sewing machine had been adopted for use in stitching soft leather uppers. Able to bind (that is, to sew together the upper) faster, better and cheaper than any skilled worker, the sewing machine inaugurated the machine age in the shoe industry. But since its delicate needle and mechanism could not deal with thick sole leather, the machine could not be used to bottom (to affix soles to uppers), forcing employers to rely on craftsmen for this stage of the production process. The uneven pace of technological advance next focused inventors' attention on bottoming. Lyman Blake of Massachusetts

invented a device with a curved needle that could sew both tough sole and soft upper leather. His design was purchased and improved by Gordon McKay, and the McKay Stitcher was introduced in Lynn, Massachusetts shortly after the outbreak of the Civil War. Traditionally, binding and bottoming were put out to rural towns since the advantages of centralizing these tasks were minimal and since putting out permitted producers to take advantage of cheap labor in rural areas. The Howe and McKay machines offered a cheaper alternative if binding and bottoming could be moved into the central shop along with earlier stages of boot and shoe production. Since learning to operate the McKay Stitcher required only a few days of practice, "green hands" -- workers unskilled in the shoemaker's craft -- suddenly became competitors for shoe industry jobs.

The traditional interpretation of the Crispins is as a reaction by skilled craftsmen against pressures of mechanization and immigration threatening to undercut their position by drawing them into the central shop or factory.⁷ Advocates of this view took the Crispin constitution literally when it stated that, "The Objects of this organization are to protect its members from injurious competition...." and when it decreed that no member of the Order should "teach, or aid in teaching, any part or parts of boot or shoe making, unless the lodge shall give permission by a three-fourths vote of those present..."⁸ Rather than reconciling themselves to the rise of the factory system, members of the Order, in this view, sought to preserve the era when shoemaking was a craft learned through apprenticeship.

Recently, Alan Dawley has revised this picture, arguing that, in Lynn at least, the Crispins were reconciled to their status as factory workers.⁹ He

characterizes them as industrial operatives whose interests centered on the wage bargain. In his view, the Crispins represented not the labor aristocracy's response to the green-hand threat but the shoe industry labor force's reaction to proletarianization.¹⁰

Crispin lodges established throughout the North operated on the local level. Day-to-day management and finances, even wage disputes and trade agreements, were treated as local matters. The International Grand Lodge intervened only when a local lodge was embroiled in a strike or threatened by a manufacturer's attempt to break up the local. Some have cited lack of coordinated action and the lodges' "utter lack of discipline" as factors in the Crispins' demise.¹¹ Others have cited the ineffectiveness of their strikes. Although the Crispins embraced the strike as a bargaining weapon, their failure to collect adequate dues kept strike funds at prohibitively low levels.¹² As a result, Crispin strikes were typically short-lived and unsuccessful.

Crispin strength reached a peak around 1870. After being weakened by the defeat of the Lynn Lodges in 1872, the 1873 depression dealt membership a devastating blow.¹³ An attempt was made to revive the Crispins in 1875; in light of the Order's poor record with strikes, its new strategy emphasized arbitration. But the decentralized structure permitted employers to avoid centers of union strength, to play off one community against another, and to open nonunionized auxiliary factories in the event of strikes, while the leadership's failure to enlist the green hands and to develop an effective response to mechanization limited the organization's appeal. In the winter of 1877-78 the Crispins were locked out of factories in Lynn and Marlboro,

Massachusetts, and their unsuccessful resistance culminated in the organization's demise.

Once recovery from the depression was underway, shoe workers turned in growing numbers to the Noble and Holy Order of the Knights of Labor, an organization founded by six garment cutters at the end of the previous decade. Cooperation and education were cardinal points in the philosophy of the new association, which believed that enlightened laborers might ultimately free themselves from the capitalist system.¹⁴ This emphasis on independence and self-reliance resembled the approach of the Crispins and was appealing to shoemakers, who had numbered among the elite craftsmen of the era preceding mechanization.

Absent from the Knights' original doctrine was an endorsement or even tolerance of strikes. The leadership presumed that the cooperative society for which labor organization should prepare the working class could be brought about through reform rather than conflict. The rank and file, more interested presumably in bread-and-butter issues, expressed itself in favor of strikes as early as 1880. In 1884, the leadership of the Knights, forced to acknowledge that strikes and not cooperation were mainly responsible for the growth of membership, formally endorsed the tactic.

In contrast to the Crispins, the Knights of Labor were organized on a federal rather than a local basis. The primary unit was the district assembly, subordinate to an unwieldy General Assembly which met only periodically. Local assemblies reported to their district assemblies. The logic of this structure was to facilitate coordinated action. Moreover, in contrast to the Crispins, the Knights advocated mixed unionism -- a national brotherhood of both skilled and unskilled workers.

Following its first national convention in 1878, the membership of the Knights of Labor grew from 20,000 in 1879 to more than 100,000 in 1885 and 700,000 in 1886. In 1882 shoe workers in Philadelphia, Cincinnati, Rochester, Chicago and St. Louis joined the Knights of Labor, and by 1884, shoeworkers comprised at least 50 per cent of the membership in the states of Massachusetts, Maine and New Hampshire.¹⁵ Despite the initial lack of support from the General Assembly, shoeworkers struck often, contributing to the national leadership's decision to embrace the strike.¹⁶ Yet the National Assembly's continued emphasis on liberating its members from wage labor rather than on securing them higher wages and improved conditions within the confines of the factory system occasioned growing dissatisfaction among the rank and file. Within four years of the Haymarket incident, membership had declined to 100,000.

One group of skilled workers, the lasters, organized separately in the years following 1878.¹⁷ Alone among shoemakers in the years succeeding the introduction of the Howe sewing machine, the McKay Stitcher and the Goodyear Welt Machine, lasters and trimmers were not directly threatened by mechanization and unskilled labor. In McKay stitched shoes the leather upper was first stretched over a molded form (the last) in order to assume the shape of a shoe. After the laster pulled the leather tight and temporarily fastened an inner sole to the upper, the last was removed and the McKay stitcher was used to attach the outer sole by passing a thread through the upper and inner sole. Dexterity and training were required to insure that neither the outer leather nor the inner lining were wrinkled or otherwise damaged.¹⁸ Although early lasting machines for use on rough shoes appeared in the mid-1870s, not

until the second half of the 1880s and the first half of the 1890s was a practical version widely adopted. Even while asserting that the new machines could triple the speed of production, promoters admitted that productivity varied with the grade of work and that high quality shoes still had to be lasted by hand.¹⁹ Nonetheless, by 1895 the Lasters' Protective Union estimated that 20 percent of hand lasters had been displaced by machines, with rapid mechanization and job loss felt most heavily in small towns with weak unions. In addition, the introduction of machinery had opened the trade to less skilled workers, thereby increasing the intensity of labor-market competition.²⁰ Despite these trends, lasters clung to their reputation as skilled craftsmen. Rather than cast in their lot with other shoe workers who were increasingly reduced to machine operators, they formed their own organization, the Lasters' Protective Union of America in 1879, and affiliated with the AFL in 1885.

Until 1884 the Lasters' Protective Union was largely confined to the shoe towns of Massachusetts with outlying branches in New Hampshire and Maine. It was then reorganized and extended to incorporate lasters from other states including New York, New Jersey, Pennsylvania and Delaware. At least eight branches of the union were established in New Hampshire over the subsequent decade. At its high point in 1891, the union recorded 74 branches with 7,998 members (5,018 in good standing).

Like the Knights of Labor, the General Advisory Board of the Lasters' Protective Union opposed strikes, although its members employed them repeatedly with considerable success. As a union of skilled workers charging dues of 10 cents a week, strike funds were adequate. Each local was required

to maintain a fund of at least \$1 per member; in their first 15 years of existence local branches paid out \$300,000 in strike benefits. In a number of instances in the 1880s, lasters were able to resist wage cuts where other shoe workers failed.²¹

The union's efforts were undoubtedly undermined by its ambiguous stance on the machinery question. Some branches, notably the Lynn local, opposed the introduction of lasting machines and passed resolutions forbidding their members to operate machinery. But the majority of locals, subscribing to the position of the General Officers, sought only to insure that lasting machines were operated by union men to prevent them from being used for training green hands or speeding up production. Branches were divided over whether wage cuts or the introduction of machinery was the greater evil.

Relations between the lasters and other shoemakers remained cordial until 1887, when manufacturers in Worcester attempted to ascertain who among their employees belonged to unions. Claiming a violation of established rules, the lasters struck. The Knights of Labor failed to offer support. Then in 1888, during a strike of shoemakers in Alton, New Hampshire, the lasters negotiated a separate settlement without consulting the Knights, breeding ill will between the two organizations.

With the decline of the Knights of Labor, other shoe workers, like the lasters before them, turned to the AFL. Following its foundation in 1881, the AFL espoused a philosophy of "pure and simple" trade unionism, what Commons called a "philosophy of wage consciousness."²² The new movement acknowledged the permanence of industrial capitalism which the Knights of Labor had denied, and conceived of trade unionism narrowly as a means of raising wages and

improving conditions. There was no cooperative movement or utopian impulse to free workers from the wage-labor system; the AFL concentrated instead on bread-and-butter issues. The early AFL differed significantly from the Knights of Labor by its organization along craft lines. Locals in a given trade comprised a national affiliated with the AFL. Participation of unskilled workers was not encouraged. In both doctrine and action the Federation embraced strikes as a necessary means to these ends.

In February 1889, workers in Dover, New Hampshire formed local union No. 1 of the Boot and Shoe Workers' International Union (BSWIU), an affiliate of the AFL. Their action was a response to disaffection with the Knights of Labor. Over the preceding years the shoemakers' lodges of the Knights had attempted to consolidate their locals into a national trades assembly (No. 216) of the Knights of Labor, with the general object of restricting entry into their occupation. Citing lack of support and even opposition on the part of the General Assembly, disgruntled members of National Trades Assembly No. 216 defected, surrendering their charter and founding the BSWIU.²³

In a period of deflation, the primary goal of the BSWIU was to prevent wage reductions. Although the BSWIU sometimes submitted grievances to arbitration, their principal weapon was the strike. More strikes occurred in the shoe industry than in any other in New Hampshire and Massachusetts during this period. Nationally, by contrast, shoe strikes ranked seventh in frequency, tenth in number of establishments struck, and seventh in number of participants.²⁴ Wage reductions and increases provided the leading reasons for strikes in the early 1890s. But if the BSWIU struck frequently, its win rate

was unremarkable. Its effectiveness was dealt a further blow by the post-1893 depression.²⁵

Thus, in 1894 labor in the New Hampshire shoe industry was fragmented among three organizations: the large and growing Boot and Shoe Workers' International of the AFL, the small and declining National Trades Assembly No. 216 of the Knights of Labor, and the relatively stable New England Lasters' Protective Union of the AFL.²⁶ According to a survey of labor organizations conducted by the Commissioner of Labor for the State of New Hampshire, in 1894 there were in the state no fewer than 337 members of BSWIU, 381 members of the Lasters' Protective Union, and 197 members of associated Boot and Shoe Workers National Trade Associations.²⁷ Some steps were taken to coordinate their efforts, notably the adoption of a common union label. Nonetheless, the strained relations between organizations continued to limit cooperation. In addition to antagonism between the lasters and other unionized workers, relations between the BSWIU and National Assembly No. 216 were strained. Although by the mid-1890s the majority of unionized shoe workers other than lasters belonged to the BSWIU, the Knights of Labor continued to dominate some of the larger shoe towns such as Manchester, New Hampshire which had been organized at an early date. Despite disagreement over means and ends, there was scope, in principle at least, for the two organizations to work hand in hand, what with the AFL's emphasis on the participation of skilled workers and the Knight's desire to supplement the ranks of the skilled with semi-skilled and unskilled unionists. But once AFL locals gained significant shop control and threatened to reduce the Knights to an organization of the unskilled, rivalry for membership intensified.

Relations deteriorated as the Knights adopted an increasing number of trade union policies, including sanctioning strikes, deemphasizing cooperation, and permitting district assemblies to organize along trade lines. Each of these changes in function and method, by tending to bring them into direct competition with the AFL, discouraged collaboration.

2. The Setting: New Hampshire in the 1890s

The analysis which follows studies the association of unionism and earnings using data gathered in 1894 and published by the Bureau of Labor of the State of New Hampshire in its First Biennial Report.²⁸ Boots and shoes comprised the second largest source of industrial employment, after cotton textiles, in the state of New Hampshire (see Table 1). New Hampshire ranked third in the nation in number of shoe industry employees, behind only Massachusetts and New York. Unlike other late-19th-century industries, many of which located in or near major cities, boot and shoe manufacture tended to be concentrated in smaller cities and towns. Until the rise of the factory system, conveniently dated by the introduction of the sewing machine in 1854, shoe manufacture was divided between the central shop located in industrial centers and a myriad of outlying areas. Uppers and bottoms produced in the central shops of Lynn, Haverhill and Worcester were put out for finishing to scores of small New Hampshire, Maine and Massachusetts towns linked to the cities by rail or river.²⁹ New Hampshire towns specialized in binding and bottoming, especially in the 1850s: Northwood, for example, had at least 100 shoe shops in 1856 with one to seven workmen each, while women in nearly every household bound uppers.³⁰ With the spread of mechanization, these and other

Table 1: Characteristics of New Hampshire's Leading Industries, 1890

	# of Ests.	Employees per Estab- lishment ^a	Total Gross Value of Product per Establish- ment ^b	Ratio of Cap- ital to Labor	Average Output per Employee	Average Wages per Em- ployee	Average # of Employees per Estab- lishment	Average Payroll per Estab- lishment	Average Capital per Establish- ment
<u>New Hampshire</u>									
All Industries	3,229	20	\$26,563	1,253	\$1,354	\$383	20	\$7,509	\$24,582
Cotton Goods	27	723	\$813,259	1,372	\$1,124	\$329	723	\$238,114	\$992,664
Boots & Shoes, Factory Products	64	126	\$187,281	490	\$1,485	\$430	126	\$54,217	\$61,825
Woolen Goods	46	65	\$174,005	1,800	\$1,911	\$392	91	\$35,721	\$163,918
Lumber & Mill Products	531	9	\$9,448	1,338	\$1,079	\$314	9	\$2,749	\$11,718
<u>U.S. Totals</u>									
All Industries	355,415	13	\$26,370	1385	\$1,989	\$484	13	\$6,424	\$18,359
Cotton Goods	905	244	\$296,112	1,598	\$1,209	\$314	245	\$76,784	\$391,183
Boots & Shoes, Factory Products	2,082	67	\$105,980	684	\$1,584	\$476	67	\$31,880	\$45,765
Woolen Goods	1,311	61	\$101,890	1,651	\$1,683	\$359	61	\$21,723	\$99,916
Lumber & Mill Products	21,011	14	\$19,212	1,734	\$1,410	\$307	14	\$4,178	\$23,622

^a officers, firm members, clerks, apprentices, children and adults.

^b total gross value of the product at the factory (including custom and repair).

Source: Eleventh Census of the United States, 1890, vol. 6, pt. 1, pp. 508-513.

stages of shoe production were increasingly centralized. Towns threatened by the loss of piece work formed committees to lure shoe factories. Town councils offered to exempt manufacturers from taxes for ten years or more and might go so far as to construct buildings for potential occupants.³¹ Most New Hampshire shoe factories located in towns with fewer than 20,000 residents where no more than two or three shoe companies had facilities.³²

At the same time, manufacturers were growing apprehensive at union inroads into urban labor markets. They anticipated greater success in countering union pressure in isolated, semi-rural labor markets where they exercised monopsony power. Workers were not unaware of the situation. As one put the point,

"I imagine that in large places where labor...has been centralized... the labor unions have been beneficial in keeping up the prices of labor; while in places where there are only two or three factories of a kind, a union is liable to create feelings of unrest, without bringing any corresponding benefits to the laborer."³³

Insofar as this view is correct, unions in the New Hampshire shoe trade should have exercised a less powerful influence over the economic position of their members than was typical of unions in other industries and regions of the country.

Another likely influence over the effectiveness of unions was state labor law. Unlike Massachusetts, New Hampshire had no statute prohibiting the firing of an employee because of union affiliation. Any agreement to refrain from doing so was won by unions at the bargaining table. Those respects in which the legal environment in New Hampshire differed from that of surrounding states tended to be less supportive of organized labor.³⁴

Of the factors considered here, the composition of shoe production in New Hampshire may have been most important in enhancing the effectiveness of union

efforts. New Hampshire shoe factories were not as large or capital intensive as their urban counterparts like the factories of Lynn. New technologies diffused to New Hampshire only once experience in Lynn and elsewhere had demonstrated their effectiveness. Some rural operators lacked the capital required to invest in expensive new machinery, while others were disadvantaged by the scarcity of mechanics to keep the machines in working order.³⁵ The economies offered by shoemaking machinery were more difficult to exploit where the scale of operations was smaller. Since 19th century machinery was best suited to the production of cheap, durable shoes, country producers attempted to counter the cost advantages conferred by mechanization by emphasizing the production of expensive, handmade "turned" shoes (so called because the entire shoe was stitched while inside out).³⁶ Turned shoe production dominated the Haverhill, Massachusetts industry, whose proximity probably promoted its development in New Hampshire towns through the country shop system. By reducing the scope for substituting capital for labor when wages rose, the importance of turned shoes in the New Hampshire industry presumably increased the scope for labor unions to elevate the earnings of their members.

Finally, there is the fact that the survey of New Hampshire shoe workers analyzed below was conducted in the depths of the 1893-94 slump. The 1894 recession is traditionally regarded as the most severe cyclical downturn in the 19th century history of the United States. In addition to the impact of the downturn on the demand for shoes, slack demand for meat reduced the supply of hides, which inflated costs. The inability of shoe manufacturers to collect on credit extended to retailers led to widespread failures.³⁷ Country factories in New England shoe towns were particularly hard hit. Not only did

a weak market provoke urban manufacturers to reduce or eliminate any earnings premium received by their own employees, thereby increasing the competitive pressure on low-wage, small-town producers, but it had a devastating impact on the market for turned shoes, as declining incomes led potential consumers to defer their purchases or substitute less expensive models.

Normally, it is assumed that the union earnings premium rises in recessions, on the grounds that unions prevent wage reductions like those experienced by nonunion workers. There are reasons to be skeptical that this was the case in 1894, however. Union growth was stagnating between two periods of rapid expansion (1884-86 and 1897-1904).³⁸ The ability of shoe workers' organizations to protect the interests of their members was undermined by factionalism and by the spectre of technological displacement.

Given the depressed state of the economy and the fragmentation of the industry's labor movement, it is reasonable to doubt the ability of union representatives to win earnings premia for their members. As one of the shoemakers surveyed skeptically expressed this view, "Trade unions are a good thing, but under present conditions of society, they cannot exist and be strong enough to do good."³⁹

3. Empirical Analysis

In 1894 agents working on a special contract basis for the State Labor Commissioner collected information by personal interview with New Hampshire shoe workers. Few details are provided in the Commission's First Biennial Report about the representativeness of the sample, although the Commissioner took pains to mention that interviews were conducted in large and small towns

throughout the state. When the number of shoe makers in a town proved too many for information to be gathered from each, agents were instructed to get answers from every branch of the business so that "the returns made may be representative of the entire industry."⁴⁰ Not all the information solicited by the Commissioner was obtained from every worker interviewed. In this section we analyze the 1,332 records that contained information on all the relevant variables.

Characteristics of the sample are displayed in Table 2. The sample is overwhelmingly male. While the men are evenly divided between the single and married, three quarters of the women are single, a somewhat low share given the usual prevalence of young, single women in factory employment.⁴¹ Men in the sample were on average six years older than women and had some six additional years of work experience. Twelve per cent of the workers in the sample were foreign born, the overwhelming majority in Canada, Nova Scotia and the United Kingdom. That the majority of immigrants were from English-speaking countries presumably accounts for the surprisingly high share of foreign-born workers belonging to unions.

Eleven per cent of the sample was unionized, 14 per cent of the men and three per cent of the women. Information on their annual earnings and days of work (calculated as 350 minus days reported as out of work) is used to compute the average daily wage for each shoe worker. The average daily earnings of unionized workers exceeded those of their nonunion counterparts by 25 cents, or by 20 per cent of the nonunion wage. The question is whether unionism or other characteristics of these workers account for the differential.

To analyze the distribution of union membership across occupational groups, we divided the 73 occupations listed in the sample into six

Table 2: Sample Means for Men and Women,
Union and Non-Union Workers

(Mean appears above standard deviation, which is in parentheses)

	All	Male	Female	Union	Non-Union
Union Membership	0.115 (.319)	0.137 (.344)	0.029 (.168)	--	--
Age	31.176 (12.452)	32.455 (12.858)	26.307 (9.292)	30.503 (9.879)	31.264 (12.749)
Female	0.208 (.406)	--	--	0.052 (.223)	0.228 (.420)
Single	0.546 (.550)	0.488 (.549)	0.765 (.495)	0.510 (.563)	0.550 (.548)
Take Books from Library? 0=No, 1=Yes	0.313 (.464)	0.285 (.452)	0.419 (.494)	0.340 (.475)	0.310 (.463)
Annual Earnings	356.98 (151.56)	379.11 (156.20)	272.71 (92.769)	432.64 (125.48)	347.16 (151.93)
Days Worked	287.88 (46.261)	289.17 (48.039)	282.97 (38.430)	295.95 (37.229)	286.83 (47.218)
Daily Wage	1.235 (.506)	1.306 (.523)	0.968 (.319)	1.463 (.382)	1.206 (.513)
Years Experience in Present Occupation	10.427 (10.931)	11.617 (11.568)	5.896 (6.261)	10.314 (8.584)	10.442 (11.203)
Job Skill	3.777 (1.894)	3.281 (1.903)	4.968 (.874)	2.510 (1.510)	3.777 (1.864)
Foreign Born	0.116 (.320)	0.118 (.322)	0.108 (.311)	0.157 (.365)	0.110 (.313)
Number of Observations	1332	1055	277	153	1179

Note: Skill content of jobs is ranked from one (most skilled) to six (least skilled) with a group seven comprised of miscellaneous occupations.

Source: See text.

categories, based on the amount of training each job required. No criterion other than occupation and the amount of training it required (specifically, neither earnings nor union status) was used in this categorization. Group 1, the most skilled, is comprised entirely of cutters. Not only was the cutting of soft upper leather an intricate task, but mistakes were expensive given the costliness of the raw material. In 1894 there existed no machine capable of carrying out this task. Years of training, often acquired through apprenticeship, were required to become a cutter.

Group 2 includes lasters, re-lasters and women engaged in turned work. While these hand tasks required only slightly less training than those in Group 1, the increasing application of lasting machines, by reducing the earnings of lasters to the level of other machine operators, tended to increase the earnings differential between Groups 1 and 2 as the period wore on. Unfortunately, the survey provides no indication of whether individual lasters were engaged in hand or machine work.⁴²

Group 3 is made up of McKay stitching machine operators and upper stitchers. The training and experience required to proficiently operate a McKay stitcher was considerably less than that required of workers in Groups 1 and 2 but more than that needed to operate other machines. The training and proficiency required of upper stitchers similarly exceeded that required of most other stitchers, since the visibility of uppers required that they be worked more cleanly than bottoms or inners.

Group 4 is comprised of other stitchers and trimmers. Traditionally, trimmers had been among the highest paid workers, earning up to twice the salary of lasters. But by 1894 practical edge and heel trimming machines had

existed for nearly 15 years. With the introduction of trimming machines, the amount of training required of trimmers was reduced to levels similar to those required of bottom or inner stitchers -- that is, less than that needed to operate a McKay stitcher but more than that required of other operators.

Group 5 is composed of laborers who worked at machines that could be operated after no more than a fortnight of training. Those in Group 6 who did the dirty work of preparing raw materials for machine work required little if any training. Group 7 is comprised of miscellaneous workers, apprentices, and those not directly engaged in production, including bookkeepers, elevator operators, general hands and machinists. The training required of those in this residual category is difficult to compare with those of Groups 1 through 6.

Using the group identification number as a measure of skill, Table 2 shows that union workers, to a much greater extent than nonunion workers, tended to be concentrated in occupations for which extended training was a prerequisite. Table 3 provides more information on the characteristics of workers in the different occupational groups. (Owing to the small number of observations in Groups 3 and 4, these two categories are combined.) It is clear that unionism was most common among workers in skilled occupations requiring extended training. Whereas union members comprise 20 per cent of the workers in Groups 1 and 2 and ten per cent of those in Groups 3 and 4, the percentage unionized falls off to four per cent or less in Groups 5-7. Workers in skilled occupations tended to have higher average earnings, to be older and to have more years of job experience, although there are exceptions to this rule. Cutters in Group 1 were on average younger than lasters and

Table 3: Descriptive Statistics of Each Skill Group
 (mean appears above standard deviation, which is in parentheses)

	Group 1	Group 2	Group 3/4	Group 5	Group 6	Group 7
Union Membership	0.18 (.39)	0.21 (.41)	0.10 (.30)	0.04 (.20)	0.03 (.16)	0.04 (.21)
Age	29.87 (11.49)	37.43 (13.24)	33.03 (11.62)	27.38 (10.13)	25.45 (9.94)	27.37 (13.72)
Female	0 (0)	0.04 (.10)	0.16 (.37)	0.57 (.50)	0.17 (.38)	0.20 (.40)
Daily Wage	1.58 (.45)	1.18 (.39)	1.46 (.67)	1.04 (.38)	1.06 (.42)	1.10 (.44)
Days Worked Last Year	293.30 (42.53)	282.40 (54.07)	288.63 (45.42)	284.10 (41.61)	294.29 (37.39)	301.33 (47.80)
Years Experience in Present Occupation	9.11 (10.45)	17.07 (12.98)	10.95 (9.68)	6.83 (6.96)	5.43 (7.22)	6.90 (11.00)
Take Books from Library 0=No 1=Yes	0.24 (.43)	0.36 (.48)	0.32 (.47)	0.36 (.48)	0.20 (.40)	0.22 (.42)
Foreign Born	0.10 (.30)	0.08 (.27)	0.08 (.27)	0.12 (.33)	0.28 (.28)	0.36 (.36)
Believe Unions Raise Wages	0.33 (.47)	0.38 (.49)	0.16 (.36)	0.13 (.34)	0.11 (.31)	0.08 (.27)
Number of Observations	196	344	238	343	115	91

Source: See text.

stitchers in Groups 2-3, suggesting that the principal port of entry for cutters was apprenticeship rather than promotion from less-skilled occupations. Otherwise, the average age of workers tended to rise with the training required in their occupations. Surprisingly, the earnings of workers in Group 2 were lower than the average for the traditionally less-skilled workers in Groups 3-4. This anomaly presumably reflects the adoption of the lasting machine, which reduced the demand for hand lasters and threw them into competition with other machine operators.

Turning to estimates of the relationship of earnings to union status, we regressed the log of average daily earnings on union status and a vector of personal characteristics including age and age squared, experience and experience squared, gender, and whether the worker took books from a library (a popular proxy for literacy).⁴³ Initially, we also included dummy variables for single and foreign-born workers, but dropped these upon finding them to be devoid of explanatory power.⁴⁴ Since the small number of observations deemed that Groups 3 and 4 be combined, the separate constant term included for Group 3 was interacted with the dummy variable for union status. Table 4 reports the results for Groups 1-5. Satisfactory results could not be obtained for Groups 6 and 7 presumably due to the miscellaneous nature of the occupations grouped together in these categories; those regressions are not reported here.

A number of aspects of the results are intriguing. Among the cutters in Group 1, earnings rise with age and with experience in current occupation, but at a declining rate. Among the lasters in Group 2, earnings similarly rise with age but decline initially with experience. Only after 3 1/2 years of experience do lasters' earnings begin to rise. It would appear that the

Table 4: Log Earnings Functions for New Hampshire
Shoe Workers by Occupational Group

(t-statistics in parentheses)

Variable	Group 1	Group 2	Group 3/4	Group 5
Constant	-0.177 (-0.866)	-0.310 (-2.006)	-0.036 (-0.180)	-0.456 (-2.824)
Union Membership	0.144 (2.543)	0.168 (4.015)	-0.050 (-0.382)	0.076 (0.825)
Age	0.026 (1.875)	0.036 (3.909)	0.033 (2.891)	0.031 (2.740)
Age Squared	-0.001 (-1.147)	-0.001 (-4.427)	-0.001 (-2.891)	-0.001 (-2.203)
Job Experience	0.017 (1.95)	-0.016 (2.78)	-0.007 (0.83)	-0.001 (0.02)
Job Experience Squared	-0.001 (-1.69)	0.002 (1.802)	0.001 (0.801)	0.001 (0.142)
Take Books from Library	-0.218 (-4.249)	-0.087 (-2.491)	-0.030 (-0.611)	-0.003 (-0.090)
Female	--	-0.204 (-1.441)	-0.250 (-3.807)	-0.192 (-5.161)
Group 4	--	--	-0.193 (-3.313)	--
Group 4 * Union Membership	--	--	0.224 (1.424)	--
R ²	0.230	0.273	0.162	0.133
Log Likelihood	-41.149	-81.11	-72.244	-110.24

Source: See text.

traditional relationship of experience to earnings was displaced by the advent of the lasting machine, perhaps as more experienced hand lasters found the demand for their services reduced and their wages cut, both absolutely and relative to those of machine operators, by new competition from shoemaking machinery.⁴⁵

The results for Groups 3 and 4 differ by the absence of any indication that job experience was related to earnings. That earnings rise with age but not with experience suggests that the bulk of training was general and that occupation-specific training was of negligible importance. This is plausible given the relatively short period of time required to learn to operate the machinery used in these occupations. While reaping significant returns from familiarity with the labor market, semi-skilled workers appear to have received minimal returns from training for particular jobs.

The results for skilled and semi-skilled occupations differ also in terms of the coefficient identifying female workers. Whereas women in the semi-skilled occupations still earn 19 to 25 per cent less than men after adjusting for other observable characteristics, the earnings of women in Group 2 engaged in turned work differ insignificantly from those of men engaged in lasting and relasting. It appears that women in skilled jobs were better able to escape the pay differentials from which female workers typically suffered.⁴⁶

After controlling for other observable characteristics of individuals, union status appears to have a statistically significant and economically important impact on the earnings of members for the skilled workers in Groups 1 and 2 but not for the semi-skilled workers in Groups 3 through 5. In Groups 1 and 2, the earnings of union members exceeded those of nonmembers by 14 to

17 per cent, a differential which resembles quite closely the average for all workers reported in the previous studies cited above. Strikingly, the impact of unionization is most robust in the equation for the lasters -- the occupational category in which the experience-earnings profile appears to have been displaced by mechanization -- suggesting that unions, rather than having their effectiveness uniformly undermined by mechanization, may have had some success in protecting their members from mechanization-induced wage cuts. Even if the lasting machine permitted employers to cut the wages of workers responsible for this task, the wages of union members appear to have been cut the least. The union earnings premium is no more than half this amount in Groups 3 and 5, and it is impossible to reject the null hypothesis that union membership in fact conferred no earnings differential. Although the point estimate for Group 4 is 22 per cent, again it is impossible to reject the hypothesis that the coefficient is zero. Our central finding is that union membership conferred important pecuniary benefits, but that these benefits were enjoyed primarily by workers in the more skilled occupations.⁴⁷

That unions further elevated the earnings of already well-paid workers suggests that they accentuated earnings inequality. Yet one of the present authors, in analyzing 1894 data for Iowa, found that unions tended to exercise a wage-leveling effect, reducing the dispersion of earnings. In fact, the two findings can be reconciled. Table 5 reports the coefficient of variation (standard deviation relative to mean) of the log of daily earnings by occupational group. In Groups 1 through 4, the earnings of union members exhibit considerably less dispersion than those of nonunion workers, suggesting that late-19th century unions, in the New Hampshire shoe industry

Table 5: Dispersion of Wage Rates
Coefficient of Variation for Union
and Non-Union Workers by Skill Group

	Union	Non-Union	% Difference
Group 1	0.203	0.301	32.65
Group 2	0.217	0.349	37.81
Group 3/4	0.215	0.484	55.54
Group 5	0.373	0.369	-1.14

Source: See text.

at least, tended to equalize earnings within skill categories but to reinforce earnings inequality between categories. Again, there is no evidence that unionism much affected the earnings of the least skilled workers.

4. Conclusion

Studies of labor organization in late-19th-century America have generally dismissed the notion that American unions secured significant economic gains for their members. Those studies concluding that unionism had real economic effects can be questioned for failing to control adequately for the fact that union members tend to be concentrated in high-paid skilled occupations, the characteristics of which could have done more than union membership to elevate the earnings of union members.⁴⁸ Still other critics have argued that wage earners' aggregate gains were more the result of buoyant economic growth than of any economic effects of unionism.⁴⁹ Our case study of the New Hampshire shoe industry at the end of the 19th century challenges both conclusions. While confirming that unionism in the New Hampshire shoe industry was most common among workers in relatively well-paid skilled occupations, we have concluded that this cannot be used to dismiss evidence of a significant union earnings premium. In fact, unions representing workers in well-paid skilled occupations were best able to raise the earnings of their members. Despite the presence of factors tending to depress any union wage effect, union wage premia for skilled workers ranged from 14 to 17 per cent, margins consistent with those found in several other recent studies. Compared to workers in skilled occupations, unskilled workers to whom mechanization and green hands posed a more immediate threat benefitted less from unionization. If the

history of the New Hampshire shoe industry is any guide, 19th century American unionism had significant economic effects, but effects largely concentrated at the upper end of the labor market.

Footnotes

1. See for example John Commons and Associates, History of Labor in the United States (New York, 1918), Mary Beard, A Short History of the American Labor Movement (New York, 1920), Foster Rhea Dulles, Labor in America: A History (New York, 4th edn., 1984), Joseph G. Rayback, A History of American Labor (New York, 1959), and Norman Ware, The Labor Movement in the United States (New York, 1929).
2. David Brody, "The Old Labor History and the New: In Search of An American Working Class," Labor History 20, pp. 111-126.
3. Barry Eichengreen, "The Impact of Unions on Labor Earnings and Hours at the End of the 19th Century," Industrial Relations and Labor Review 40 (July 1987), pp. 501-515.
4. Ira Gang, "Unions and Earnings in 1890," Industrial Relations and Labor Review 40 (July 1987), pp. 516-527.
5. The classic study of the Crispins is Don. D. Lescohier, The Knights of St. Crispin, 1867-1874, Bulletin of the University of Wisconsin No. 355, Economics and Political Science Series, Vol. 7, No. 1 (Madison, 1910).
6. At its peak in 1870, the Knights of St. Crispin had anywhere from 20,000 to 50,000 members, making it the largest labor organization in the United States. Commons and Ware put it at 50,000. The Shoe Workers' Journal, official of the Boot and Shoe Workers' Union, put it at about 20,000 in "A Review of the Unions in the Shoe Trade of America: Introduction--St. Crispins," The Shoe Workers' Journal, No. 5, 1910, pp. 5-9. See Don Lescolhier, "The Knights of St. Crispin." All such estimates must ultimately be judged unreliable. See John Philip Hall, "The Knights of St. Crispin in Massachusetts, 1869-1878." Journal of Economic History 18, p. 161.
7. In the words of Commons, "The 'green hands' menace is the key to the understanding of the meteoric career of the Order of the Knights of St. Crispin." Commons, History of Labor, p. 77.
8. "Introduction--St. Crispins," The Shoe Workers' Journal, No. 5, 1910, pp. 6,8.
9. Alan Dawley, Class and Community: The Industrial Revolution in Lynn (Cambridge, Mass., 1976), pp. 143-148. See also Leon Fink, Workingmen's Democracy (Urbana, Illinois, 1983), p. 51.
10. Dawley argues that the shoeworkers' artisanal heritage remained important largely as an aid to organization because either the shoeworkers themselves or their parents had developed a tradition of self-reliance and organization during the preceding period. Recent research has also overturned the picture of immigration as the principal source of new shoe industry labor. Blewett, Dawley and Dublin have all argued that the increase in labor supply to Lynn

and other shoe industry towns took the form mainly of rural native New Englanders. Mary H. Blewett, Men, Women and Work: A Study of Class, Gender and Protest in the New England Shoe Industry 1780-1910 (Urbana, 1988), ch. 9; Thomas Dublin, "Rural-Urban Migrants in Industrial New England," Journal of American History (December 1986); Dawley, Class and Community.

11. "The right to strike was inherent in the local lodge and no organization can long endure whose members can go out on strike at will for any cause or for no cause at all, as was the case during the entire existence of the Order." See "Introduction--St. Crispins," The Shoe Workers' Journal, No. 5, 1910, p. 9.

12. Initially, dues to the Local Lodge were 25 cents a month, 5 cents of which went to the Grand Lodge. Blewett, Men, Women and Work, ch. 7.

13. Widespread unemployment created pools of surplus labor, while business failures made available a supply of cheap production facilities, permitting manufacturers who wished to avoid a pocket of Crispin strength in one community simply to move to another. J.H. Hollander (ed), Studies in American Trade Unionism (London, 1906), p. 367.

14. In the 1880s the national organization promoted cooperative ventures in mining, cooperage and shoemaking; few if any of these proved economically viable, however.

15. Four of the 32 delegates to the 1878 Convention had been shoemakers, three of whom eventually rose to leadership positions. The Shoe Workers' Journal, p. 5.

16. After 1884, the KOL sometimes coordinated strikes against all operations of a single employer as a way of combatting the footloose firm.

17. In the era of the Knights of St. Crispin, the lasters had already developed considerable independence from the rest of the labor movement. When they joined the Crispins, they sometimes organized semi-independent groups within that larger organization. See Blewett, Men, Women and Work, ch. 6. Some lasters did in fact choose to join the Knights of Labor. See Fink, Workingmen's Democracy, p. 50.

18. See Frederick Allen, The Shoe Industry (New York, 1922), p. 198 and Alan Fox, A History of the National Union of Boot and Shoe Operatives 1874-1957 (Oxford, 1958), p. 10.

19. Fred Gannon, A Short History of American Shoemaking (Salem, 1912), p. 43; Irwin Yellowitz, "Skilled Workers and Mechanization: The Lasters in the 1890s," Labor History 18 (1977), p. 198.

20. Yellowitz, "Skilled Workers," p. 203-204.

21. See for example the discussion of the lasters of Rochester, New York in Fink, Workingmen's Democracy, p. 50-51.

22. Commons, History of Labor, p. 308.
23. At the BSWIU's first convention in June of 1889, 47 locals were represented. Augusta Emile Galster, The Labor Movement in the Shoe Industry (New York, 1924), p. 74.
24. U.S. Government, Tenth Annual Report of the Commissioner of Labor (Washington, D.C., 1896), pp. 1829-30, 1864-67.
25. When Pray, Small & Co. of Auburn, Maine was struck in 1893 after having reduced wages by 25 percent, "on account of the panic (a most serious depression which bottomed out in 1894) which swept over that country in that fall and winter, the officers of the organization (BSWIU) were forced to accept the manufacturer's terms." The Shoe Worker's Journal, p. 12.
26. After 1895 these organizations all federated in a new AFL-affiliated Boot and Shoe Workers Union. This development postdates the data used in this paper, however. Mary H. Blewett, "The Union of Sex and Craft in the Haverhill Shoe Strike of 1895," Labor History 20 (1979), pp. 352-375.
27. State of New Hampshire, Second Annual Report of the Bureau of Labor (Concord, 1894), pp. 94-95.
28. State of New Hampshire, First Biennial Report of the Bureau of Labor (Concord, 1896).
29. Paul C. Faler, Mechanics and Manufacturers in the Early Industrial Revolution: Lynn, Massachusetts, 1780-1860 (Albany, N.Y., 1981), ch. 4.
30. State of New Hampshire, "The Shoe Industry in New Hampshire," in First Biennial Report, pp. 9-13.
31. State of New Hampshire, First Biennial Report, p. 20.
32. An exception was Manchester, with a population of 44,000 in 1890, where a number of factories located.
33. State of New Hampshire, First Biennial Report, p. 43.
34. U.S. Department of Labor, Growth of Labor Law in the United States (Washington, D.C., 1967), pp. 191-246.
35. In consequence, some machine manufacturers adjusted their marketing practices, changing a specified royalty per pair of shoes produced (which often did not vary with the volume of production). Yellowitz, "Skilled Workers," p. 199. To the extent that such practices prevailed, they would have tended to reduce technology-based differences in shoe manufacture in New Hampshire.
36. Although turned shoe production in Haverhill was largely mechanized by 1893 (following the introduction of the Goodyear Turn Machine), for the

reasons just detailed these new methods were probably slower to spread to New Hampshire.

37. Blewett, Men, Women, and Work, ch. 9.

38. Membership in the BSWIU reportedly fell from 4,000 to 2,500 between 1893 and 1894. State of New Hampshire, First Biennial Report, p. 50.

39. State of New Hampshire, Second Annual Report, p. 63.

40. New Hampshire, First Biennial Report, p. 48.

41. The tendency of women to remain in the industry following marriage may reflect the fact that the relative wages of female shoeworkers were high compared to other sources of employment. Blewett, Men, Women and Work, ch. 7 and passim.

42. Mary Blewett has suggested to us the possibility that women listed as engaged in turned work may have actually been doing the work of lasters without being so named. This provides a further rationale for grouping individuals with this job description together with lasters.

43. See for example Joan Hannon, "Ethnic Discrimination in a 19th Century Mining District: Michigan Copper Mines, 1888," Explorations in Economic History 19, pp. 28-50.

44. Coefficients on these variables were uniformly small. t-statistics ranged from -0.21 to 0.17 for marital status and from -0.18 to 0.18 for nativity.

45. Another intriguing result is the negative coefficient on "takes books from library." This variable surely captures more than the extent of literacy (the usual interpretation), since close to 100 per cent of the native born should have been literate by 1894. While 88 per cent of the sample was native born, only 30 per cent took books from the library. What other characteristics of workers captured by this variable result in its negative coefficient is hard to determine, however.

46. Our conclusions concerning the relative well-being of skilled women in the industry are broadly consistent with those of Blewett, "The Union of Sex and Craft," especially p. 375.

47. Independent time-series evidence is consistent with this interpretation. Between 1890 and 1907 there is no trend in the ratio of wages of New Hampshire male cutters and machine lasters to the wages of Boston male laborers (a proxy for the male unskilled wage). In contrast, male McKay stitchers' relative wages declined by -0.0199 per year. See U.S. Bureau of Labor Statistics, "History of Wages in the United States from Colonial Times to 1928," Bulletin No. 604, Washington, D.C.: GPO. We thank Susan Carter for this reference.

48. Ross criticized Douglas to this effect. See A.M. Ross, "The Influence of Unionism Upon Wages," Quarterly Journal of Economics LXII (1948), pp. 236-286; Paul Douglas, Real Wages in the United States, 1890-1920 (New York, 1930).

49. Lloyd Ulman, The Rise of the National Trade Union (Cambridge, 1950).